ASSIGNMENT 3

Textbook Assignment: "Steam Catapults," Pages 4-1 through 4-67.

3-1. What are the most significant differences among the various types of steam catapults?

1. Power strokes and lengths
2. Endspeeds and power strokes
3. Endspeeds and launching capacities
4. Lengths and launching capacities

3-2. What switch or valve controls the flow of steam from the ship's boilers to the catapult's wet-steam accumulator?

1. The steam launching valve
2. The capacity selector valve
3. The steam fill valve
4. The steam pressure cutoff switch

3-3. How far must the launch valve control assembly crosshead travel to stop the number 2 launch valve stroke timer clock?

1. 3 1/2 in.
2. 6 in.
3. 9 in.
4. 11 1/2 in.

3-4. What device controls the opening rate of the launch valves to allow the launching of various types and weights of aircraft?

1. The launch valve control valve
2. The capacity selector valve
3. The launch valve stroke timers
4. The steam pressure cutoff switch

3-5. What mechanism prevents a steam buildup behind the launching engine steam pistons?

1. The exhaust valve
2. The pressure-breaking orifice elbow
3. The exhaust valve keeper valve
4. The wet-steam accumulator

3-6. The exhaust valve hydraulic lock valve controls the flow of fluid to which of the following components?

1. The steam pressure cutoff switch
2. The pressure breaking elbow
3. The exhaust valve limit switch
4. The exhaust valve hydraulic actuator

3-7. What determines the number of launching cylinders that are mounted in the catapult trough?

1. Overall length of the catapult
2. Required amount of elongation for the type of catapult
3. Number of base pads in the trough
4. Number of lubricator nozzles required for the type of catapult

3-8. What function is provided by the cylinder covers of the launching engine?

1. Eliminates the need for external bracing of the trough covers and track assembly
2. Prevents steam from escaping through the cylinder slots during the power stroke
3. Prevents steam pressure from spreading the cylinder in the area of the cylinder slot
4. Provides a means of connecting the shuttle to the piston assemblies

3-9. What force maintains the tension on the catapult launching engine cylinder sealing strip?

1. Hydraulic pressure
2. Spring tension
3. Steam pressure
4. Air pressure

3-10. What component serves as the chassis for the other components of the steam piston assembly?

1. The spear
2. The barrel
3. The connector
4. The support guide

3-11. What prevents the loss of steam from behind the steam piston assemblies during the catapult's power stroke?

1. Segmented seals
2. Piston rings
3. The piston barrel
4. Bushings

3-12. What component serves as a bearing surface for the piston assembly?

1. The rubbing strip
2. The barrel
3. The piston guide
4. The strip guide

3-13. A total of how many rollers are mounted on the shuttle frame?

1. Six
2. Two
3. Eight
4. Four

3-14. What component of the water brake cylinder installation forms the vortex at the open end of the water brake cylinder?

1. The jet ring
2. The striker ring
3. The annulus ring
4. The choke ring

3-15. The term "elbow pressure" refers to what specific pressure?

1. The basket strainer inlet pressure
2. The basket strainer outlet pressure
3. The water pressure entering the water brake cylinder
4. The pump discharge pressure

3-16. The contacts of the steam cutoff pressure switches close when the steam pressure in the launching engine cylinders reaches what pressure?

1. 10 psi
2. 20 psi
3. 30 psi
4. 40 psi

3-17. All catapult trough covers are designed to withstand what total amount of vertical rolling shuttle load?

1. 100,000 lb
2. 132,000 lb
3. 200,000 lb
4. 264,000 lb

3-18. Which of the following information is NOT displayed on the Digital Endspeed Indicator (DESI)?

1. Time of day
2. CSV setting
3. Shuttle endspeed
4. Catapult number

3-19. The bridle tensioner fully aft limit switch is part of two catapult electrical circuits. One is the retract permissive circuit. What is the other one?

1. The maneuver forward
2. The maneuver aft
3. The military power
4. The suspend circuit

3-20. Which of the following conditions would indicate a water loss in the catapult hydraulic fluid?

1. An increase in ph number
2. A decrease in ph number
3. An increase in viscosity
4. A decrease in viscosity

3-21. What is the function of the catapult main hydraulic pump delivery control unit?

1. To direct fluid to the gravity tank when the pump is on stroke only
2. To direct fluid to the accumulator when the pump is off stroke only
3. To direct fluid to the accumulator when the pump is on stroke and to the gravity tank when the pump is off stroke
4. To direct fluid to the accumulator when the pump is off stroke and to the gravity tank when the pump is on stroke

3-22. The motion of the rotary retraction engine hydraulic motor is transferred to the drive system cables by what assembly?

1. The traverse carriage assembly
2. The crosshead assembly
3. The sheave and adapter assembly
4. The drum assembly

3-23. Which of the following components prevents the cables from becoming crossed and tangled on the drum?

1. The cable tensioner assembly
2. The screw and traverse carriage assembly
3. The fairlead sheave assembly
4. The cable tensioner sheave assembly

3-24. The forward motion of the rotary retraction engine is stopped at the completion of the grab advance cycle by what force or device?

1. By cable dead weight drag
2. By fluid acting on the carriage assembly
3. By the advance buffer
4. By fluid braking of the hydraulic motor

3-25. What is the function of the rotary retraction engine maneuvering valve?

1. To protect the engine from damage in the event of a malfunction
2. To control the bridle tensioner control valve
3. To control the speed of the grab after advance or retract stroke braking has been completed
4. To initiate the advance and retract stroke braking

3-26. Which of the following components operates hydraulically to keep the retraction engine cables taut?

1. The cable tensioner assembly
2. The screw and traverse carriage assembly
3. The lead sheave assembly
4. The cable tensioner sheave assembly

3-27. Which of the following components guides the cables between the retraction engine and the catapult trough?

1. The cable tensioner assembly
2. The screw and traverse carriage assembly
3. The fairlead sheave assembly
4. The cable tensioner sheave assembly

3-28. The retraction engine drive system cables are attached to what component(s)?

1. The shuttle only
2. The grab only
3. The shuttle and launching engine steam pistons
4. The grab and launching engine steam pistons

3-29. During normal launching operations, when will the grab release the shuttle?

1. When endspeed has been reached and the unlocking mechanism is disengaged
2. When launch complete is reached and the locking mechanism is actuated
3. When both have returned to battery position and the unlocking mechanism is actuated
4. When maximum load drag weight is reached and the unlocking mechanism automatically disengages

3-30. Which of the following controls is NOT a momentary contact push button?

1. Fire
2. Maneuver aft
3. Lube
4. Maneuver forward

3-31. The controls for the integrated catapult control system (ICCS) are mainly divided between or among how many control stations?

1. Five
2. Two
3. Three
4. Four

3-32. The malfunction and status lights are located on what panel or console of the ICCS?

1. The central panel
2. The cat officer control console
3. The emergency deckedge control console
4. The monitor panel

3-33. What panel controls and monitors the pneumatic system?

1. The left front panel
2. The left intermediate front panel
3. The right intermediate front panel
4. The right front panel

3-34. What panel controls and monitors the hydraulic system?

1. The left front panel
2. The left intermediate front panel
3. The right intermediate front panel
4. The right front panel

3-35. What panel provide emergency operational capacity?

1. The left front panel
2. The left intermediate front panel
3. The right intermediate front panel
4. The right front panel

QUESTIONS 36 THROUGH 38 APPLY TO NON-ICCS.

3-36. What main control console panel indicates the status of various catapult system pressures?

1. The steam panel
2. The emergency panel
3. The monitor panel
4. The operating panel

3-37. What main control console panel is used to control the catapult fill valves?

1. The steam charging panel
2. The emergency panel
3. The auxiliary deckedge panel
4. The operating panel

3-38. What main control console panel contains all lights, switches, and pushbuttons that are found on the deckedge panel?

1. The gauge panel
2. The emergency panel
3. The auxiliary deckedge panel
4. The operating panel

3-39. What indicates the catapult readiness to the launching officer during operations?

1. The gauge box
2. The monitor panel
3. The deckedge signal box
4. The operating panel

3-40. The hydraulic fluid supply is shut off to what valve during the firing of no-loads?

1. The bridle tension regulator valve
2. The maneuver aft valve
3. The lubrication valve
4. The advance valve

QUESTIONS 41 THROUGH 44 APPLY TO PROCEDURES FOR ICCS.

3-41. What personnel gives the tension signal to the catapult director?

1. The launching officer
2. The deckedge operator
3. The catapult safety observer
4. The topside safety petty officer

3-42. What personnel signal the launching officer to take tension?

1. The catapult director
2. The deckedge operator
3. The catapult safety observer
4. The topside safety petty officer

3-43. What personnel signals suspend to the launching officer?

1. The launching officer
2. The deckedge operator
3. The catapult safety observer
4. The topside safety petty officer

3-44. On ships where the ICCS is the primary mode of controlling catapult launching operations, who depresses the FIRE push button to launch an aircraft?

1. The launching officer
2. The deckedge operator
3. The catapult safety observer
4. The central charging panel operator

QUESTIONS 45 THROUGH 48 APPLY TO PROCEDURES FOR NON-ICCS.

3-45. Under normal launching conditions, what should be the last word(s) spoken over the sound powered phones?

1. FIRST READY
2. TAKING TENSION
3. FINAL READY
4. FIRE

3-46. What signal is used by the deckedge operator to indicate that the FINAL READY light has come on at the deckedge panel and the catapult is in the FINAL READY condition?

1. Both hands are held open and above the head
2. One hand is held open and above the head
3. One hand is held above the head with two fingers extended
4. Both hands are held above the head with only the index fingers extended

3-47. Which of the following actions must the deckedge operator take after receiving the FIRE signal from the catapult officer?

1. Immediately push the FIRE push button
2. Hesitate for at least 10 seconds to ensure that the aircraft is at full power, then push the FIRE push button
3. Notify the console operator that he is firing the catapult, then push the FIRE push button
4. Perform a final safety scan of the flight deck and catwalks, then push the FIRE push button

3-48. What immediate action must be taken by the deckedge operator if the catapult officer signals a hangfire?

1. Push the MANEUVER AFT push button to release bridle tension
2. Tell the console operator to actuate the SUSPEND switch
3. Close the EMERGENCY cutout valve and then actuate the SUSPEND switch
4. Actuate the SUSPEND switch and tell the console operator to ROTATE THE EMERGENCY CUTOUT VALVE, ROTATE THE EMERGENCY CUTOUT VALVE

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